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Marine Corps University
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Increasing Combat Effectiveness in the Riverine Group

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AUTHOR: LCDR Christopher L. James

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Mentor and Oral Defense Committee

Member: Craig A. Swanson Ph.D.

Approved: [Signature]

Date: 24 April 2009

Oral Defense Committee

Member: CHARLES D. MCKENNA Ph.D.

Approved: [Signature]

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EXECUTIVE SUMMARY

Title: Riverine Logistics Models: Increasing Combat Effectiveness in the Riverine Group

Author: Lieutenant Commander Christopher L. James, Supply Corps U.S. Navy

Thesis: A logistics process that subordinates all of the logistics support to a detachment and combines aspects of the models that are in place for other expeditionary forces will provide a more effective method of logistics and maintenance support.

Discussion: Expeditionary logistics has historically provided the naval logistician a unique challenge from the norm of supporting ships at sea, as the war fighter can be operating in varied environments, from relatively well developed infrastructures and supportive host nation governments, to more austere conditions, lacking any local support or established standard replenishment routes. The Navy Expeditionary Combat Command is currently trying to establish an effective, efficient method of logistical support for one of its newly formed subordinate commands, RIVERINE GROUP ONE (RIVGRU ONE). The Naval Special Warfare Logistics Support Unit (NSW LOGSU) and Explosive Ordnance Disposal Expeditionary Support Unit (EOD ESU) are two constructs within the Navy providing examples of successful expeditionary logistics support. If RIVGRU ONE with its unique equipment and mission set leveraged the experience and lessons learned from NSW LOGSU and EOD ESU and formed its own version of an ESU it would improve the overall combat effectiveness of its squadrons.

Conclusion: The Expeditionary Support Unit concept provides RIVERINE GROUP ONE an increased level of combat effectiveness. As history has shown the war fighters of the squadrons will be called upon to operate in austere and sometimes remote locations, a RIVGRU ESU will be able to provide the level of logistics support required to successfully complete assigned missions by centralizing receipt and issue of material and maintenance of equipment. The ESU will ensure logisticians have the training necessary to operate Army, Marine Corps and Air Force logistics systems ensuring that mission critical requirements are either in theatre or able to be acquired through the logistical processes in place.

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INTRODUCTION

It is a well-known fact that logistic planning, or lack of it, is a key determinant in the success or failure of any operation. The primary function of any logistician is to provide the right material to the right place at the right time. This fundamental concept is true for any logistician, civilian or military, and the successful application of effective logistics support is dependent upon a myriad of variables; who is being supported, where do they need the support, what is the mission of the supported group and how long does the unit require support, are just a small sample of things the logistician has to consider. From the beginning of the Global War on Terror (GWOT), expeditionary warfare has frequently challenged logisticians. Expeditionary logistics provides an additional challenge as the war fighter can be operating in varied environments, from relatively well developed infrastructures and supportive host nation governments, to more austere situations involving forcible entry and limited infrastructures, lacking any local support or established standard replenishment routes. Naval expeditionary logistics is about moving naval forces and sustaining their operations.¹

The Navy Expeditionary Combat Command, specifically, RIVERINE GROUP ONE is currently trying to answer the question; is there a more effective method of providing logistics and maintenance support than the processes currently in place? In order to answer the question it is necessary to provide a description and history of the small boat unit in America's armed forces in order to gain an appreciation for the varied role and

associated challenges inherent to providing support to such a unique combat element. After discussing an abbreviated history I will describe several logistics models for small expeditionary units within the Navy and Marine Corps specifically focusing on units that utilize small boats such as Naval Special Warfare (NSW) and the Navy's Explosive Ordnance Disposal groups. The CONOPS of each model will follow and their applicability to RIVERINE GROUP ONE (RIVGRU ONE). A final comparison will be accomplished demonstrating that a logistics process that subordinates all of the logistics support to a detachment and combines aspects of the models that are in place for other expeditionary forces will provide a more effective method of logistics and maintenance support.

Approximately 2.2 billion people live within 100 kilometers of coastline, and the highest population densities occur near major rivers and deltas.² The population density makes the rivers and deltas strategically important not only for regional economics but also as main supply routes and major lines of communication to be used by friendly and enemy forces alike. In early 2005, former Chief of Naval Operations (CNO), Admiral Vern Clark assembled a GWOT task force to develop ways the Navy could proactively participate in fighting terrorism. Chief of Naval Operations Strategic Studies Group 24 recommended expanding the Navy's green and brown water capability to rebalance the force so that the United States Navy can better combat today's green and brown water threats.³ Later in the same year Admiral Mike Mullen emphasized the need for a balanced Navy that is capable of fighting across the spectrum of the maritime domain. "I want a balanced force in every sense of the word...balanced to face the challenges of our age...balanced to operate in, and command, if need be, all things maritime...I believe our

Navy is missing a great opportunity to influence events by not having a riverine force.”⁴ As a result of the implicit desire to engage the enemy on inland waterways, on June 7 2005 Chief of Naval Operations, Admiral Vern Clark, directed development of a “Navy Expeditionary Sailor Battalion Concept” with the goal of standing up a combat battalion in fiscal year 2007. This is a return to the past. Up through the 1970s, competency as naval infantry, sailors performing as infantry, and sometimes providing land based artillery support, has been an integral part of the Navy’s operations. While this competency has been gone from the fleet for a generation, its return can be facilitated by an examination of a rich history.⁵

Throughout history rivers have been vital arteries of transportation, economics and communication. Rivers permitted explorers to penetrate deep into uncharted territory, provided settlers with potable drinking water and foodstuffs, and later gave farmers and merchants a means to ferry their products to market. For these same reasons, rivers--arteries of transportation, economics and communication--have been and remain key naval and military areas in times of conflict or war. Riverine warfare units have been used to support homeland defense, insurgencies, counter-insurgencies, river assault, transport operations, navigation, surveys and, provide naval presence.⁶ The U.S. Navy’s riverine experience has encompassed the entire gamut of riverine missions and tasks.

Examples include:

- Riverine assault. These include assaults against conventional forces (Civil War) and unconventional forces (Seminole and Creek War and Vietnam War).
- Control of riverine lines of communications. These include: Civil War, Vietnam War, and, Operation Iraqi Freedom.

- Security operations. These include: Vietnam War.
- River crossings. These include: World War II Rhine River crossing.
- Riverine Operations Other Than War. These include: Jordan River-Dead Sea Expedition, initial Yangtze River operations, Mexican Teacapan River operations, South American river surveys and deployments, Yangtze Patrol, and Rhine River Patrol.
- Theater security cooperation (TSC). These include: the Rhine River Patrol, Viet Cong Insurgency, and Vietnam War
- Homeland defense. These include: the Revolutionary War and Civil War.⁷

The logistics process supporting riverine forces can very easily become a critical vulnerability to the supported squadron. Integration of a properly planned combat support element can bolster the reliability of the equipment (boats, weapons, and communications) and become a critical factor in the expected performance of the deployed squadron. From a systems perspective failure of one of the components (logistics) could lead to a complete failure of the system and degrade the operational effectiveness of the force. If the operator cannot depend on the system to work as it is designed or when it is needed, then the system will not be trusted and consequently will not be used by the war fighter. False confidence is another consequence of poor reliability. A war fighter should be able to assume that the equipment used has the expected capabilities, but if the equipment is unreliable, it may fail at the critical moment of need. A force with a high degree of readiness will be able to conduct a large variety of missions. In a riverine environment, the missions will continually change, and new

challenges will present themselves to the war fighters.⁸ The spectrum of challenges is readily evident when looking at the history of riverine warfare.

HISTORY of RIVERINE WARFARE

Although the first example of American involvement in riverine warfare was seen in Canada during the British invasion of Quebec in 1759, the first significant example of riverine warfare in the American Revolution occurred on Lake Champlain in 1775-76. This lake and its connecting waterways to the north and south joined Canada with the American colonies near New York City. These waterways represented the only major line of communication between British Canada and the colonies (there were no significant North-South overland routes) and the British sought to use it as a means of dividing New England from the other colonies.⁹ The British also planned to attack New York and, in conjunction with the forces from the North, strangle the Americans until they surrendered. Benedict Arnold knew of the British plan and proposed a delaying strategy, using a small fleet of boats specifically designed and built for speed rather than firepower. America's first riverine squadron successfully executed the planned mission and caused the British to over-estimate the American strength, resulting in the British delaying the start of their campaign while they took the time to build more ships. The delay allowed the Americans to mass sufficient forces to defeat the British at Saratoga the following year. The events on Lake Champlain provide an excellent example of the potential effectiveness of using a small force specifically designed to provide combat effectiveness on inland waterways.

The Seminole and Creek wars in Florida from 1835-1842, although not one of country's finest moments in terms of cultural sensitivity, provide other examples of riverine conflict that would be similar to the conflicts in the Mekong Delta of Vietnam. The 1832 Indian Removal Act relocated the Florida tribes to reservations west of the Mississippi. Many Seminole and Creek Indians refused to leave and resisted removal. The challenge of fighting an enemy in the swamps and rivers of the Florida Everglades led the Army to request help from the Navy to keep the lines of communication open to support the movement of supplies and provide a means of transportation to the enemy.¹⁰ The varying characteristics of the Everglades waterways made the use of many different craft of multiple sizes and draft an absolute necessity and completely prevented the possibility of attack by land forces alone. The riverine force not only engaged in direct action against the Indians but also spent a considerable amount of time mapping and charting the area of operations. Midshipman J.T. McLaughlin, the commander of the riverine element of the combined Navy and Army force transported supplies and kept vital communication lines open as well as utilized "blue water" ships and forward operating bases to provide logistics support.¹¹

The Civil War was the first time the U.S. Navy conduct of riverine patrol operations was a pre-planned component of a large campaign. General-in-Chief of the Union Army, Winfield Scott proposed a plan known as "The Anaconda Plan"¹² designed to subdue the Confederacy by blockading its coastal and inland waterways. The extensive use of steam propulsion gave combat river craft new mobility but greatly increased supply, maintenance, and repair requirements.¹³ In the East riverine patrols engaged in reconnaissance and raiding of confederate logistics sites. The riverine forces

in the West secured the strategic juncture of the Ohio and Mississippi rivers allowing Union influence over river trade to Illinois, Kentucky and Missouri. Perhaps Admiral David Glasgow Farragut and the U.S. Navy West Gulf Blockading Squadron, attacking along the Mississippi River with seagoing war ships, accomplished the greatest strategic victory by riverine forces during the Civil War by taking New Orleans.¹⁴

The riverine forces of the Civil War used a variety of ships to accomplish their missions. The "ironclads," well-recognized vessels, saw action in the East. The initial riverine ships in the West were converted paddleboats and the ships used to take New Orleans were modified sea going vessels. Regardless of the type of ship the force demonstrated three characteristics; the ability to carry the war rapidly to the enemy, versatile response, and flexible adjustment.¹⁵ This highlights the inherent required adaptability of a riverine force both in its use of primary combat craft matching its area of operation and the subsequent sustainment required.

Although riverine warfare did not play a major role in World War II, it did play its important part where needed, from the PT boats and small amphibious craft in the Solomons, through the East Indies and Philippines and in Europe. An interesting example, helping to hasten the end of the war in Europe, occurred in March 1945, with the simultaneous crossing of the Rhine River by five U.S. armies. This massive riverine operation was the prelude to the final overwhelming assault on Nazi Germany. More than 50,000 troops, thousands of vehicles and pieces of ordnance were brought across the river in 72 hours. To accomplish this task, U.S. naval units were trained in England, Belgium, and France to operate landing craft equipped with .30- and .50-caliber machine guns. The boats were disguised to give an Army appearance and were brought to training sites

at night. Where possible they came by water, through the North Sea and down through the waterways of Belgium and France. Those with the 3d Army came 300 miles by land from Le Havre.

The Rhine River crossings illuminated once again the versatile projection of sea power into a riverine environment. Since the operation was essentially an amphibious assault, landing craft were used for the crossing. Army artillery barrages prepping the landing areas mitigated lack of armor protection on the vessels used. "There were enough unique characteristics to the Rhine River crossings to support the naval historian Samuel Eliot Morison's observation, "Operating landing craft on a river hundreds of miles from the sea was one of the oddest assignments drawn by American bluejackets during World War II." It was "odd," in regard to the immensely difficult, unprecedented overland passage that the river force was required to make before it could go into action."¹⁶

The Vietnam War riverine campaign represented the first time that logistics planning was a consideration from the inception of operations. It also represented the first time the United States military formalized a doctrine for riverine operations.¹⁷ In 1965, after numerous studies, Task Force 116 and Task Force 117 were established as a joint force with the newly formed 9th Infantry Division and the Navy and began conducting patrols within the Mekong Delta and the Rung Sat Special Zone both in Southern Vietnam. These areas were chosen by Military Assistance Command Vietnam (MACV) because it had been determined by General William C. Westmoreland that the North Vietnamese Army (NVA) and the Viet Cong (VC) were using the waterways to transport a vast amount of material to support their operations.¹⁸ Additionally, MACV

thought that the Mekong Delta might provide a source of economic stabilization for the country, as it was capable of producing the entire country's rice requirement, therefore allowing other areas of the country to engage in industrialization. The Mobile Riverine Force (MRF) consisted of over 31,500 personnel, 22,500 of whom were in indirect supporting roles, and over 500 fixed wing, rotary wing and riverine specific craft at the height of its operations in 1971.¹⁹ The Mobile Riverine Force required a wide variety of logistics support due to the unique nature of the mission, location and types of equipment. Support was accomplished through the use of ground and afloat command and control bases. Active and mothballed amphibious ships were modified and provided the following functions: command and control; messing, berthing and recreation; supply, maintenance, and repair; aviation support; and naval gunfire support. The afloat bases also had a small maintenance division capable of all but the most significant repairs. The Mobile Riverine Force ground support element was supported by a major riverbank shore facility at Dong Tam that performed maintenance including overhauls. Resupply for the afloat units was accomplished mostly through Navy channels originating in Saigon and the Dong Tam facility, and occurred from a combination of Navy and Army assets. Specific attention was given to ground-force specific equipment via an Army logistics liaison officer located at the Brigade HQ. Material was delivered from supply hubs by helicopter, ship or truck to MRF bases and from there the unit-specific pre-separated items were either picked up by the crews or flown to units operating in remote locations.²⁰

The logistics support of riverine operations in Vietnam afforded a greater amount of flexibility than previously witnessed during the past American use of waterways in

combat. Rather than the ad-hoc nature of logistics support of the past, the Navy and the Army recognized the particular challenge of operating and supporting unique equipment in remote locations and executed a jointly sponsored CONOPS that allowed for force multiplication vice restriction to mission execution.²¹ The training and doctrine developed during this time period provided the foundation for the conduct of future logistics support in the riverine environment.

MODERN DAY RIVERINE OPERATIONS

After the Vietnam War the Navy no longer conducted riverine operations due to conflicting priorities, but the Marine Corps recognized the utility of such a force and continued to develop its potential. In 1989 the Marine Corps formed the Riverine Assault Craft (RAC) platoon, which in 1992 became the Small Combat Craft Company (SSCo). Despite acknowledgements of the potential of SSCo the company was unsuccessful at becoming truly combat effective due to inadequate logistics and maintenance support.²² An attempt to alleviate the problems of support was made in 2002 with infrastructure additions dedicated to providing training (maintenance, riverine combat skills, and combat service support). The problems with readiness were still evident when SSCo deployed to Iraq in 2005 under II MEF. Initially, the ground commanders were unsure how to task the SSCo or what their capabilities were, but as OIF continued the Company demonstrated its usefulness by uncovering weapons caches on islands and providing security for the Hadithah dam. Although the Marines had a maintenance platoon organic to SSCo, the problem of repair part support became an issue. A Marine Sergeant

Maintenance Chief illustrated this point in 2004; "We're doing good with what we have. My guys are the best for the job. We may not have all the parts we need but we get by with what we got."²³ Similar to the Navy and Army efforts in Vietnam, the Marine Corps riverine concept of operations called for the exploitation of theater logistics assets and purposeful reduction in duplicative efforts. In particular it called for a mobile maintenance team, a concept that was revisited when the Navy reassumed riverine operations in 2005.

Riverine Group One was established in 2006 under the auspices of the Naval Expeditionary Combat Command (NECC). It originally consisted of one deployable squadron and quickly grew to its current size of three squadrons. Each squadron is comprised of 16 riverine craft, 224 personnel, C4I capability and organic logistics. The first squadron immediately assumed the responsibilities of the now disestablished SSCo at the Hadithah dam.²⁴

Logistics for Riverine Group One is a challenge due to its possible mission set, possible operational areas and unique type of equipment. They are expected to operate self-sufficiently, away from established forward bases, for extended periods of time. The uniqueness of the force extends to its relationship with the conventional navy in the sense that the riverine force, without the benefit of a seabase, will have to support itself from the land.²⁵

An interview with the incumbent N4 (Logistics Department Head) for Riverine Group One explained the current process for supporting the three riverine squadrons now in operation. Each squadron has a Logistics Department (N4) and a Material Department (N43). The Material Department provides for boat maintenance, vehicle

maintenance, and combat service support and camp/convoy security. Before a squadron deploys the N4 and N43 determine mission critical repair parts and other items and include those items in what is referred to as a Pack-Up Kit (PUK). The size of the PUK represents the limits of initial self-sufficiency the squadron can attain. Once deployed, a small cadre of personnel from the Logistics and Material Departments form a Supply Management Unit (SMU) or logistics cell at a location in theatre that has had time to mature and is capable of receiving shipments from outside of the theatre. The SMU is responsible for replenishing the PUK and the acquisition of material and services that cannot be found within the normal Department of Defense Supply Chain. In the event that critical material is unavailable the SMU has the capability to reach back to Riverine Group One in CONUS for additional support and expediting services. The Maintenance Department resident with the SMU ensures the correct repair material is acquired and recorded but doesn't perform the maintenance. The actual maintenance is performed by the mechanics resident within the portion of the squadron that is forward. Depot level maintenance such as major overhauls is arranged and accomplished through the coordination of the squadron and any in-theatre depot level assets.²⁶ The current logistics process is heavily dependent upon the resources available within theatre. The maintainers and supply personnel are required to have proficiency in the requisition system of the service or unit that the squadron is attached to within theatre. That is to say not only does the logistician need and comply with their naval system of requisitioning parts and recording maintenance but they must also be able to understand the processes established by the theatre commander. They need to be well versed in the logistics system of the Marine Corps, Army or Air Force. This issue of competency is also

addressed in the JP-4, the Joint Publication for logistics as well as the draft CONOPS for riverine logistics.²⁷

Proof that the current process works is provided by the three deployments that have occurred since Riverine Group One began operations. However, the process has several problems that are currently being addressed by Riverine Group One N4 and Naval Expeditionary Combat Command N41. One of the problems with the current process is the reliance of the deployed squadron on its reach back capability. According to the Riverine Group One N4, the deployed squadron heavily relies on its ability to reach back to the Group in CONUS whenever it has difficulty expediting material or requisitioning items unique to the riverine squadron. In an operational environment that has matured this issue is not entirely significant; commercial carriers and TRANSCOM (Transportation Combatant Commander) are able to transport material from overseas logistics hubs and manufacturers. If the deployed squadron is operating in an environment that is truly austere or remote the ability to utilize what amounts ultimately to a convenience will not be possible and logistical support will be compromised because the squadron has not practiced the skills necessary to interface with the other joint assets that may be in theatre. Another issue is related to manning and the propensity for the squadron Commander to use his logisticians primarily as combatants. The squadron manning for logisticians does not support their use as combatants, and, as a result, much of the reporting, requisitioning and recording they are trained to do goes undone. Unlike the Marine Corps, for example, the riverine force has not fully developed a combined arms approach to combat; more specifically, there is no associative organization to the LCE (Logistics Combat Element). This means that there is no entity in the squadron who

has the sole responsibility of ensuring that the maximum state of combat readiness is achieved at all times. Again, the in-place process works but it requires the extraordinary creativity and ingenuity of all involved to do so. Also there is potential to achieve efficiencies both in the amount of manpower and the process itself. The Navy's Explosive Ordinance Disposal Expeditionary Support Unit provides the first pertinent example of a logistics model that supports a naval expeditionary force.

EXPLOSIVE ORDINANCE DISPOSAL EXPEDITIONARY SUPPORT UNIT

The Explosive Ordinance Disposal (EOD) Expeditionary Support Unit (ESU) is a subordinate command to EOD GROUP TWO who, like Riverine Group One, is subordinate to NECC. ESU supports all of the logistical and financial management needs associated with the EOD GROUP. Their internal organization includes Administrative, Operations, Supply and Medical departments. They are responsible for supply, ordnance, transportation, communications support, field services, facility maintenance and programming, weapons inventory control and repair, boat and engine maintenance and dive locker and hazardous material handling. The Commanding Officer of ESU is a Navy Supply Officer.

EOD operates primarily as a supporting element to a wide variety of missions and units from Carrier Strike Groups to the U. S. Secret Service. During the planning of an upcoming mission the logisticians and planners of ESU work with EOD planners and technicians to determine specific in-theater support requirements. Prior to a deployment the EOD operators and ESU planners establish requirements. ESU procures and makes

arrangements for the distribution and pre-positioning of all the required material. ESU personnel begin pre-deployment training six months prior to departure. Approximately two months prior to deployment an element from ESU attaches to the EOD unit and continues pre-deployment training as a larger combined team. Pack up kits are organized and assembled in a fashion similar to the Riverine Group. Additionally, ESU will send a detachment of logisticians to a forward operating area to establish a logistics hub as close as feasible to the proposed area of operations, initiate relationships with the theater commander and contractual arrangements. During the course of the mission, logistics are supported from the forward position but retain the ability to reach back to CONUS for assistance. The separation of the logistics function from the internal structure of EOD allows the operators to focus on the mission and ensures an uninhibited level of support.

Maintenance support for EOD equipment is divided between the ESU and EOD. EOD has equipment that is very unique and specific requiring specialized care. The maintenance for this type of gear is accomplished within the group. ESU's Material Division carries all of the "unit issued gear" (x-rays, robots, ropes, special kits, etc.) and the technicians capable of maintaining the gear. The ESU logistics model has been in use for two years and is enjoying success.²⁸ A more mature model of naval expeditionary logistics is the Logistics Support Unit supporting the Naval Special Warfare SEAL teams.

NAVAL SPECIAL WARFARE LOGISTICS SUPPORT

Naval Special Warfare (NSW)/SEALS logistics support is unique due to the relationship they have with the Special Operations Command. U.S. SOCOM has U.S.C. Title 10 responsibility to train, equip and develop strategy for Special Forces. Title 10 authority is significant because it allows U.S. SOCOM to rapidly acquire material and contract for services outside of the normal DOD Acquisition process. Within the Navy construct, the Logistics Support Units (LOGSU) provide support for the SEAL teams. LOGSU is a subordinate command to the NSW group it supports in the same way the EOD ESU are subordinate to their respective operational commands. There are significant differences between the ESU model and LOGSU model of logistics support. The most significant is the existence of the Combat Service Support Troop (CSSTP) element within the organization. The CSSTP provides the SEALs with a deployable combat service support asset capable of coordinating in-theatre logistics requirements with the area of operations combatant commander including contracting, cargo handling, forward operating base establishment, security, medical support, and maintenance. Another significant difference is the ability of the CSSTP to access the USSOCOM contracting and procurement process, thereby decreasing the normal lead times associated with the standard Navy processes. There are sufficient support elements to coincide with the SEAL deployment schedule. As the SEALs progress through their pre-deployment training so does the CSSTP, eventually joining the SEALs during the integration stages of training.²⁹ Although the LOGSU model is not implicitly adaptable by RIVGRU ONE, it does offer elements that translate well into the expeditionary nature of riverine logistics.

FUTURE RIVERINE LOGISTICS

Riverine logistics processes need to support the wide range of potential operations. The logistics process needs to be flexible enough to switch between task driven support and organizational support. In a manner similar to the EOD ESU and, in some respects, to LOGSU, RIVGRU ONE needs to consider the logistics support for: supply support, maintenance management, gear and equipment, ammunition, and hazardous material. Consideration should also be given to the potential of managing weapons, armory operations, communications gear and medical services.

In this regard RIVGRU ONE currently has three squadrons and subsequently gives consideration to the aforementioned aspects of logistics support three separate repetitive times. The processes employed by the squadrons, although similar to each other will inherently lack standardization resulting in inefficiencies and excessive inventories. The formation of an ESU within RIVGRU ONE would allow for increased efficiencies in both manpower and support processes. The ESU would assume responsibilities for all material support for the squadrons and financial management, as well as maintenance of Civil Engineer Support Equipment (CESE), weapons, vehicles and boats. RIVGRU ONE material management and support should be addressed in terms of classes of supply support as well as garrison and forward/deployed support. Consolidation of the management of all classes under an ESU will result in a reduction of the required number of any particular line item, referred to as depth. This action will result in a reduced storage requirement and manpower needed to manage the total overall

material used by the three squadrons. Taking the responsibility of material management away from the squadrons will also provide the squadron OICs more time to focus on their combat mission. After conducting interviews with the staff of RIVGRU ONE, NECC and EOD ESU it became apparent that the operational members of the organization had and wanted to maintain the ability to reach back to CONUS for "garrison" support. An expediting cell would perform this function. A portion of the expediting cell would go forward with the deploying squadron and embed with the theatre logistics element and provide liaison services. Another portion of the cell would remain in CONUS to coordinate overseas movement of material with Department of Defense logistics hubs (DLA, NAVICP, etc.) It was also noted that currently, there existed a propensity for the forward located logistician to excessively rely upon their ability to reach-back for "garrison" support due to the relative ease of requisitioning material or contracting for services. In order to minimize their reliance, pre-deployment training of the ESU would include a comprehensive explanation of the OPCON and TACON relationships that will exist once the unit is in theatre as well as the specific points of contact relative to logistic support systems and procedures.

The RIVGRU ONE ESU will also have the responsibility of the squadrons' equipment maintenance. In a fashion similar to that of the EOD ESU, RIVGRU ESU maintainers will perform all of the depot and intermediate level maintenance as well as the significant operational level maintenance when the squadron is not deployed. When the squadron is engaged in pre-deployment work-ups the ESU will assign maintainers to the squadron who will deploy with the squadron. This action will have the effect of increasing the combat effectiveness by alleviating the Squadron Commander of another

logistics responsibility further allowing a greater focus on tactical and operational mission accomplishment. The maintainers will have the ability to draw upon their consistent and frequent exposure to the gear the squadron deploys with as well as the centralized base of knowledge the ESU will provide. An additional benefit is derived from the training the maintainers receive, not only in the specifics of their trade craft but also in their understanding of configuration management systems designed to ensure equipment has the latest improvements and part support.

CONCLUSION

The Expeditionary Support Unit concept provides RIVERINE GROUP ONE an increased level of combat effectiveness. As history has shown the war fighters of the squadrons will be called upon to operate in austere and sometimes remote locations, a RIVGRU ESU will be able to provide the level of logistics support required to successfully complete assigned missions by centralizing receipt and issue of material and maintenance of equipment. The ESU will ensure logisticians have the training necessary to operate Army, Marine Corps and Air Force logistics systems ensuring that mission critical requirements are either in theatre or able to be acquired through the logistical processes in place.

Supporting expeditionary units is not new in either conception or execution. Aside from the examples provided earlier the Marine Corps and Army have been providing support to their respective troops since their beginnings. The successful transition from three separate squadron supply departments to a single ESU will require

an acknowledgment of the lessons available from other services and the leveraging of various initiatives currently established. It is incumbent upon the leadership of RIVGRU ONE, present and future, to develop the procedures and organizational restructuring required to establish an ESU that will ultimately get the right parts and equipment to the right place at the right time.

ENDNOTES

¹ National Research Council. *Naval Expeditionary Logistics: Enabling Operational Maneuver from the Sea*. (Washington DC: The National Academies Press Copyright, 1999)

² Naval Expeditionary Combat Command, Concept of Operations - US Navy Riverine Force (DRAFT), p. 30, Naval Amphibious Base, Little Creek, VA, 30 August 2006

³ James Beaver and others, "Systems Analysis of Alternative Architectures for Riverine Warfare in 2010," (master's thesis, Naval Post Graduate School, 2006), 1

⁴ Chief of Naval Operations remarks as delivered at the Naval War College, Newport, RI, 31 August 2005, Retrieved December 12, 2008 from the World Wide Web at <http://www.navy.mil/navydata/leadership/mist.asp?x=5>

⁵ Director Navy Staff Memorandum of July 6, 2005, Implementation of Chief of Naval Operations (CNO) Guidance—Global War on Terrorism (GWOT) Capabilities.

⁶ R. Blake, Dunnavent, 'Muddy Waters: A History of the United States Navy in Riverine Warfare and the Emergence of a Tactical Doctrine, 1775-1989,' (Dissertation in History, Texas Tech University, 1998), 1

⁷ Robert Benbow and others, *Renewal of Navy's Riverine Capability: A preliminary Examination of Past, Current and Future Capabilities*. (Alexandria Virginia : CNA Corporation, 2006), 99.

⁸ James Beaver and others, "Systems Analysis of Alternative Architectures for Riverine Warfare in 2010," (Master's Thesis , Naval Post Graduate School, 2006), 134

⁹ U.S. Navy. Naval History Division. *Riverine Warfare: The U.S. Navy's Operations on Inland Waters*. Washington, DC: U.S. Government Printing Office, 1969.
<http://www.history.navy.mil/library/online/riverine.htm#i> (accessed December 30, 2008)

¹⁰ Ibid

¹¹ Blake, p98

¹² Blake, p124

¹³ Benbow, p89

¹⁴ Ibid. 90

¹⁵ U.S. Navy.

¹⁶ Ibid.

¹⁷ Dunnavent, p188

¹⁸ William Fulton, *Riverine Operations 1966-1969* (Washington, DC: Department of the Army, 1973) 45

¹⁹ Benbow, p14

²⁰ Fulton, p111

²¹ Ibid. 112

²² Benbow, p215

²³ Macario Mora, "Boat Mechanics Keep mission afloat for Small Craft Company". *Marine Corps News*, May 24, 2004 retrieved from Global Security <http://www.globalsecurity.org/military/library/news/2004/05/mil-040524-mcn01.htm> accessed January 20 2009

²⁴ Marine Corps Center for Lesson Learned, *Small Craft Company Deployment During Operation Iraqi Freedom II*, May 2006 Newsletter retrieved from Small Wars journal <http://smallwarsjournal.com/documents/mcclnewsletter8.pdf> accessed February 10 2009

²⁵ Beaver, p188

²⁶ Commander Gene Hawks, USN. Face-face interview with author, January 20, 2009

²⁷ U.S. Joint Chiefs of Staff, *Doctrine for Logistics Support of Joint Operations*, JP 4-0 (Washington, DC: U.S. Joint Chiefs of Staff, April 6, 2000), I-5

²⁸ Lieutenant Jason Fernandez, USN. Face-to-face interview with author, March 10, 2009

²⁹ Captain Robert Gantt, USN. Face-to-face interview with author, February 20, 2009